

Assessment of Inter-Connection between Suriphobia and Individual's Blood Glucose Level: A Questionnaire Centred Project

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Abstract

Blood sugar level is actually the estimation of the total glucose sugar content in the one's blood. Insulin and Glucagon are the two key hormones responsible for maintaining homeostasis which sustain blood glucose level. Hypoglycemia and Hyperglycemia are the two conditions associated with blood sugar level. In case of hypoglycemia, blood glucose level falls below the normal level of glucose in the blood while hyperglycemia is the condition of elevated blood glucose level than the normal range. Different tests are available to test the blood glucose level of an individual. The central objective of this project was to assess the inter-connection between one's being suriphobic and their blood sugar level at fasting. Phobia is a word associated with the condition of extreme fear from a series of specified events. Suriphobia or mice fear is the term used for those individuals who extremely fear from mice, rats, rodents etc. This study was a questionnaire based project to assess the fact that if there is any inter-connection between people's being suriphobic and their blood glucose level at fasting. For this purpose blood sugar level of the sample population was calculated using Glucometer. Statistical Analysis point towards the significant results if this study as the calculated p -value was exact of the standard p -value which is $p \leq 0.05$. Therefore, the fact that there is a significant relation between individual's being Suriphobe and their Blood Glucose Level at fasting is proved.

Keywords: Blood Glucose Level, Suriphobia, Fasting Blood Sugar, Glucometer, Hypoglycemia.

Introduction

Glucose is the chief source of energy for human body. Body utilizes glucose through process of cellular respiration to generate ATPs [1]. Blood sugar level is the estimation of glucose level in the blood of an individual [2]. The amount of sugar in blood is maintained through homeostasis. Two key hormones responsible for this homeostasis are Insulin and Glucagon [3]. Insulin is produced by beta cells of pancreatic islets. Insulin is involved in the conversion of extra blood sugars into glycogen. Glycogen is the stored form of sugars. It is usually stored in skeletal muscles and livers. On the other hand, Glucagon which is secreted by alpha cells of pancreas is involved in conversion of stored glycogen into glucose. This conversion occurs when blood is low on sugar level and body needs energy. Normally four grams of glucose is present in blood of an adult human [2].

Mean of Normal blood glucose level for non-diabetics is 5.5 mmol/L or 100 mg/dL and is maintained between 3.9 mmol/L (70 mg/dL) to 7.1 mmol/L (130 mg/dL) (Advameg). But for diabetics advised range before eating is 90 mg/dL to 130 mg/dL, while after eating should be less than 180 mg/dL [4]. Different types of tests are available to test the glucose level. These include Glucose Tolerance Test, random glucose test, postprandial test, and fasting blood sugar (FBS) test [5].

Glucose Tolerance Test involves the time period in which the given sugar is removed from the blood. It is generally done for checking insulin resistance [6].

Random Glucose Test is done randomly and sample is taken from a non-fasting individual.

Postprandial Test is done two hours after taking the meal. Fasting Blood Sugar (FBS) test is done after 10 to 16 hours of fast. It is usually done in early morning. Usually two situations are associated with blood sugar levels viz hypoglycemia and hyperglycemia. Hypoglycemia is the situation in which blood sugar levels fall below the normal value. Resultantly, body is unable to get required energy and person can feel dizziness, nausea, muscle weakness, twitching of muscles, and loss of consciousness [7]. Opposite to this, hyperglycemia is the situation in which blood glucose level rise above the normal value. It is quite harmful as it can damage kidneys, eyes, brain, and even heart [8].

Phobia is a kind of psychological condition which is triggered when a person feels grave danger from a specific situation or an object [9]. In phobia a person feels a sudden wave of anxiety which triggers stress or fear response. Phobia is considered a conditioned response which is developed over time as a result of specific childhood incident or stories [10]. Phobia not only affects the mental behavior of an individual, but also his social behavior. Phobia is usually classified

in three kinds, including Social Phobia, Agoraphobia, and Specific Phobia. Social phobia is a type of phobia in which an individual is afraid of the judgmental nature of others [11]. While, Agoraphobia is a general phobia of leaving home or so-called safe place. In contrast, Specific Phobia is a phobia from certain objects, animals, or situation. Musophobia falls under specific phobia. Musophobia is the fear of rats or mice. Musophobia is more prevalent in females and children, rather than males [12]. Upon encountering a mouse or a rat, insular cortex of brain processes it as an intense situation, and amygdala initiates a hormonal signal thus preparing for defensive response [13, 14]. Any type of phobia, if left unchecked can become dangerous for an individual. Treatment of Musophobia involves progressive relaxation, systematic desensitization, medication, virtual reality and hypnotherapy.

Methodology

Study Scheme

This project was designed in a way that almost 136 students were involved from different levels of the same institute i.e. Institute of Molecular Biology & Biotechnology ((IMBB), Bahauddin Zakariya University (BZU), Multan, Pakistan. Main inclusion standard was that individuals must be students of IMBB, BZU and their level must be graduate and post graduate. Our principle purpose was to check the interrelation between two elements which were Blood Glucose measurement and one's being suriphobic or non-suriphobe. Blood sugar levels were estimated using Blood Glucose meter also known as Glucometer. Questionnaires were distributed among the students asking 'Are you a sufferer of Suriphobia (Mice Phobia)?'

Blood Sugar Assessment

A Glucometer or Blood Glucose Meter was used for the assessment of one's blood sugar or glucose level. Glucometer is a digital device with certain components like a meter with small screen for reading, glucose test strips, a lancing device and lancet drum containing lancets. A lancet is inserted into the lancing device and finger is pricked or lanced to get a blood sample on a test bar or strip which is already inserted in the glucometer and then wait for the reading to come. After few seconds a value will appear on the screen representing Blood Glucose level of an individual. Never use one lancet more than one time. Blood sugar has different ranges for fasting and normal. Fasting range varies from 72-100mg/dL while normal range varies from 100-125mg/dL.

Statistical Analysis

Statistical Analysis of the collected data was done by calculating the Average or Mean values and also Standard Deviation (S.D). SPSS, software was utilized for performing t-test and also for the calculation of p-values. Calculated values were compared with standard p-value which was $p \leq 0.05$.

Results and Discussion

This study was based upon a questionnaire survey in which individuals were asked about their behavior on experiencing mice that either they are the victims of Suriphobia or not? Our main purpose was to find if there exists any notable interaction between two factors which were one's being Suriphobia and their fasting blood sugar level. Almost 136 students were involved in this project. They were requested to answer the question mentioned in the questionnaire and their blood glucose level on fasting range was estimated. Total of 62.5% individuals were sufferers of Suriphobia while 37.5% individuals were Non-suriphobes.

Table 1: Collective percentage of Suriphobes & Non-suriphobes

Sr. No.	Categories	Mutual (Male & Female)
1.	Suriphobe	62.5%
2.	Non-suriphobe	37.5%

From total 136 individuals, 106 were women which are about 77.9%, while 30 were men which are 22.1% in terms of percentage. Figure 1 is a graph which elaborates the total number of individuals included in this project.

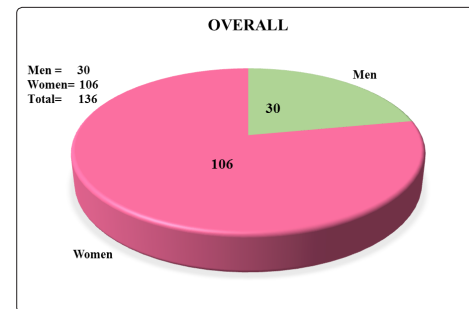


Figure 1: Total of Individuals including Men & Women

In 136 individuals regardless of men and women, there were about 85 individuals who filled the column yes in the questionnaire which means that they were sufferers of Suriphobia. In the women category, almost 74 women were Suriphobes while in men category about 11 men were Suriphobes. Figure 2 which is Pie Chart elaborates the men and women who were had Suriphobia.

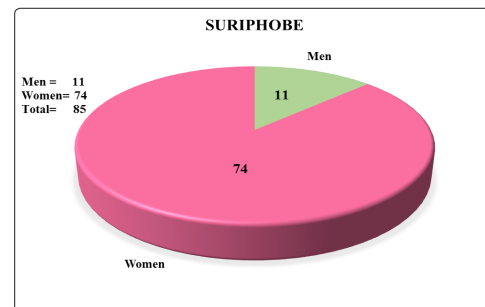


Figure 2: Pattern of Suriphobes in Men & Women

Around 51 persons answered that they haven't any fear from mice which definitely point towards the fact that they were Non-suriphobes. In different sexual categories, 32 women answered that they were Non-suriphobes and 19 men filled the column saying No to Suriphobia. Figure 3 which Pie charts shows the pattern of Non-suriphobes in men and women.

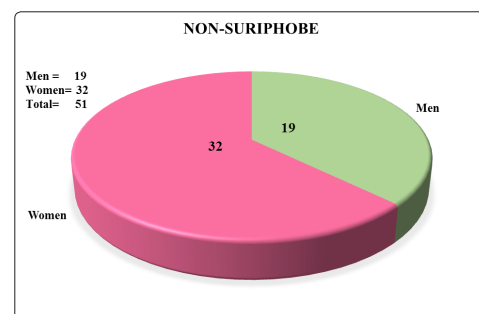


Figure 3: Pattern of Non-suriphobes in Men & Women

Figure 4 which is a Horizontal Bar Graph is a detailed representation of the percentage behavior of the individual's being suriphobic and non-suriphobic. About 69.8% of the women professed that they were extremely suriphobic in nature, while 30.2% women were non-suriphobes. In the second sexual group, a men group, around 36.7% of the men was suriphobic in nature while 63.3% professed that they didn't fear from mice and are non-suriphobes.

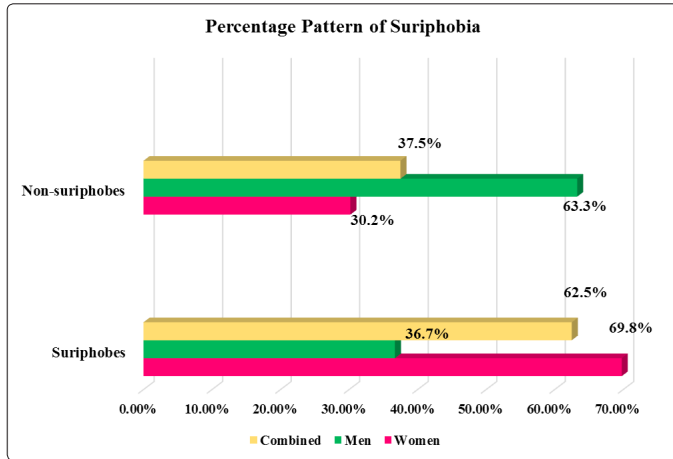


Figure 4: Percentage Pattern of Suriphobes and Non-suriphobes in Men & Women

As it is described earlier in this paper that our central objective was to assess the fact that either there is any inter-connection between Individual's being Suriphobic and Blood Glucose level of the same individual at fasting range. A methodology was devised in a way that questionnaires were distributed and Blood Glucose level was estimated using Glucometer and then statistical analysis of the data was done using specified statistical softwares. SPSS was the software that was utilized for calculating *p*-value performing t-test to prove the proposed hypothesis that there is an interrelation between Individual's being Suriphobe and their Blood Sugar Level at fasting range. The standard *p*-value was set to 0.05 i.e. either less than or equal to 0.05. The calculated *p*-value was exact 0.05 that proved that there is association between the above mentioned parameters i.e. Individual's Suriphobia and their normal Blood Sugar level at fasting range. Table 2 demonstrates the significance of the results.

Table 2: Interaction between Individual's Blood Glucose Level (at Fating) (Mean ± S.D) and Suriphobia (Mice Phobia)

Sr. No.	Sexual Class	Suriphobe (Mean ± S.D)	Non-suriphobe (Mean ± S.D)	<i>p</i> -value
1.	Men	90.64±7.28	94.58±6.06	0.14
2.	Women	91.22±6.25	92.22±8.05	0.53
3.	Mutual	91.14±6.35	93.57±7.78	0.05*

**p*≤0.05

Conclusion

Sugar level or Glucose level is the quantity of sugars or carbohydrates present in one's blood. Carbohydrates are utilized by cells via cellular respiration in order to generate ATP energy. The normal amount of sugars in blood varies from 70 mg/dL to 130 mg/dL and means value is almost 100 mg/dL. There are usually two disorders associated with glucose level in blood. These are hypoglycemia and hyperglycemia. In hypoglycemia sugar level is below than normal level of 70 mg/

dL, while in hyperglycemia it's more than normal upper limit of 130 mg/dL. Homeostasis of carbohydrates in blood is maintained by two key hormones namely Insulin and Glucagon. Insulin converts excess blood sugars into glycogen. Opposite to this, glucagon converts glycogen back to glucose whenever energy is required. There are different types of tests which are used to check the sugar level in the blood. The sample is usually taken before and after meals.

Suriphobia is regarded as the phobia of mice or rats. In this psychological condition a person is feels imminent danger from a mouse or rat even if it's not dangerous. This phobia is developed through societal conditioning or any kind of accident which a person has faced in childhood. Studies indicate that Suriphobia is more common in females and children rather than males. Whenever a person faces a rat or mouse stimulus a stress signal is produced in the brain and body prepares itself for defence condition.

In this study relationship between blood sugar levels and Suriphobia was tested. For this purpose 136 students were randomly selected from Institute of Molecular Biology and Biotechnology, Bahauddin Zakariya University Multan. Among 136 students, 106 (77.9%) were females and 30 (22.1%) were males. Blood sugar levels were analyzed from samples taken before and after meals. Sugar levels before meals were recorded between 72 mg/dL to 100 mg/dL and levels after meals were 100 mg/dL to 125 mg/dL. Total 85 (62.5%) students admitted to be Suriphobes, while 51 (37.5%) students said that they are non-suriphobes. Out of 85 suriphobes, 74 were females while 11 were males. On other hand, out of 51 non-suriphobes 32 were females and 19 were males.

In other words, out of total 106 females, 69.8% females admitted to be suriphobes and 30.2% females said that they do not fear mice or rat. While, out of total 30 males, 36.7% males replied that they are suriphobic while 63.3% males admitted that they are not suriphobic.

Standard deviation and Mean of the data were calculated using SPSS software, against standard *p*-value of 0.05. Mutual data of males and females after analysis showed the *p*- Value of almost 0.05. This value when compared with standard *p*-value indicates that results are significant because both standard and calculated values are same. Results also indicate that ratio of Suriphobia is more among females rather than males.

References

- Brown DS (2000) the effect of individual and group concept mapping on students' conceptual understanding of photosynthesis and cellular respiration in three different academic levels of biology classes.
- Wasserman DH (2009) Four grams of glucose. American Journal of Physiology-Endocrinology and Metabolism 296: E11.
- Aronoff SL, Berkowitz K, Shreiner B, Want L (2004) Glucose metabolism and regulation: beyond insulin and glucagon. Diabetes spectrum 17: 183-190.
- Mol A (2009) Living with diabetes: care beyond choice and control. The Lancet 373: 1756-1757.
- Advameg I What is mg/dl and mmol/l? How to convert? Glucose? Cholesterol?
- Organization WH (2006) Guidelines for the prevention, management and care of diabetes mellitus.
- DeFronzo RA and Abdul-Ghani M (2011) Assessment and treatment of cardiovascular risk in prediabetes: impaired glucose

- tolerance and impaired fasting glucose. The American journal of cardiology 108: 3B-24B.
8. Carey M, Boucai L and Zonszein J (2013) Impact of hypoglycemia in hospitalized patients. Current diabetes reports 13:107-113.
 9. Jeremitsky E, Omert LA, Dunham CM, Wilberger J, Rodriguez A (2005) The impact of hyperglycemia on patients with severe brain injury. Journal of Trauma and Acute Care Surgery 58: 47-50.
 10. Association AP (2013) Diagnostic and statistical manual of mental disorders (DSM-5®), American Psychiatric Pub.
 11. LeBeau RT, Glenn D, Liao B, Wittchen HU, Beesdo-Baum K, et al. (2010) Specific phobia: a review of DSM-IV specific phobia and preliminary recommendations for DSM-V. Depression and Anxiety 27: 148-167.
 12. Kraft D (2010) Use of in Vivo and in Vitro Desensitization in the Treatment of Mouse Phobia: Review and Case Study. Contemporary Hypnosis 27: 184-194.
 13. Straube T, Mentzel H-J, Miltner WH (2005) Common and distinct brain activation to threat and safety signals in social phobia. Neuropsychobiology 52: 163-168.
 14. Winerman L (2005) Figuring out phobia. American Psychological Association: Monitor on Psychology 36: 96.

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